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IS 8665 (1977): Protein-Fortified Bread [FAD 16:
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IS : 8665 - 1977

Indian Standard
SPECIFICATION FOR
PROTEIN-FORTIFIED BREAD

UDC 664.66.022.39



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

March 1978

Price Rs 5.00

GF 2

Indian Standard

SPECIFICATION FOR PROTEIN-FORTIFIED BREAD

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Indian Standard

SPECIFICATION FOR PROTEIN-FORTIFIED BREAD

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 28 December 1977, after the draft finalized by the Nutrition Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 The use of oilseed protein flours concentrates and isolates in commonly manufactured food items is on the increase. One possibility which has been tried out in the country for the past several years is to manufacture protein-rich breads. This standard is expected to ensure production of protein-fortified bread of certain minimum quality.

0.3 In the preparation of this standard, due consideration has been given to the provisions of the Prevention of Food Adulteration Act, 1954 and the Rules framed thereunder. However, this standard is subject to restrictions imposed under that Act, wherever applicable.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for protein-fortified bread. This standard does not cover the requirements for white bread, brown bread, fancy bread, wheatmeal bread, fruit bread, rolls and chemically aerated bread.

2. ESSENTIAL INGREDIENTS

2.0 The following materials shall be used in the preparation of dough for protein-fortified bread.

*Rules for rounding off numerical values (*revised*).

2.1 MAIDA — Conforming to IS : 7464-1974*.

2.2 Wheat ATTA — Conforming to IS : 1155-1968†.

2.3 Leavening Agents — Any of the following agents, singly or in combination may be used.

2.3.1 Baker's Yeast — Conforming to IS : 1320-1972‡.

2.3.2 Lactic Acid Ferment

2.4 Edible Common Salt — Conforming to IS : 253-1970§.

2.5 Edible Protein Flours — Conforming to the relevant Indian Standard.

2.6 Edible Protein Isolate/Concentrate — Conforming to the relevant Indian Standard.

2.7 Water — See IS : 4251-1967||.

3. OPTIONAL INGREDIENTS

3.1 In addition to the essential ingredients specified in **2**, any of the following ingredients of edible quality may be added to the protein-fortified bread dough:

- a) Milk products, such as condensed milk, milk powder, whey and curd;
- b) Gluten;
- c) Sugar and sugar products;
- d) Honey;
- e) Dextrose monohydrate;
- f) Liquid glucose;
- g) Malt products;
- h) Edible starches, such as potato starch, corn flour and tapioca flour;
- j) Fat, such as hydrogenated edible vegetable oil (vanaspati) or refined edible oil of a suitable type or butter or ghee or margarine or their mixtures;
- k) Vitamins, minerals and amino acids;
- m) Lecithin;

*Specification for wheat flour for use in bread industry.

†Specification for wheat *ATTA* (*second revision*).

‡Specification for baker's yeast (*first revision*).

§Specification for edible common salt (*second revision*).

||Quality tolerances for water for processed food industry.

- n) Sodium or calcium stearoyl 2 — lactylate, diacetyl tartrate esters of monoglycerides (delta esters);
- p) Glycerine and glyceryl monostearate;
- q) Fungal enzyme (protease and diastase);
- r) Emulsifying agents — permitted in PFA Rules; and
- s) Albumin.

3.2 Improvers and Mould Inhibitors — The following may be used, in the quantities given against each:

<i>Improvers</i>	<i>Percent by Mass of MAIDA/ ATTA Mix, Max</i>
a) Ammonium persulphate	0.25
b) Calcium phosphate	0.25
c) Calcium carbonate	0.50
d) Ammonium chloride	0.05
e) Potassium bromate	0.005
f) Benzoyl peroxide	0.05
g) Ascorbic acid	0.2

Mould Inhibitors

a) Calcium or sodium propionate	0.5
b) Acetic or lactic acid	0.25
c) Vinegar	0.50
d) Acid calcium phosphate	1.0
e) Sodium diacetate	0.4
f) Acid sodium pyrophosphate	0.5
g) Sorbic acid or its sodium, potassium or calcium salts	0.1

NOTE — Improvers listed at (d) and (f) may be used subject to CCFS approval.

4. REQUIREMENTS

4.1 The protein-fortified bread shall be baked in the conventional form or in any other form as agreed to between the purchaser and the vendor. The crust shall be uniform in colour, not scorched and shall be free from soot and any other foreign matter.

4.1.1 The loaf shall have a good volume. The crumb shall be springy with small pores uniformly distributed throughout and with thin cell walls. It shall be free from non-porous mass, splits and large holes, lumps of flour or salt or any other evidence of incomplete mixing.

NOTE — The bread shall be considered as having a good volume if its volume/mass ratio is not less than 2.5 when tested by the method given in Appendix A of IS : 1483-1968*.

4.1.2 There shall be no hollow between the crust and the crumb.

4.1.3 The flavour shall be characteristic of fresh, well-baked protein-fortified bread, free from staleness, bitterness or any other objectionable flavour or taste.

4.1.4 The bread shall also be free from indications of rope or mould. It shall also be free from added colouring matter.

4.2 The bread shall be manufactured in premises maintained under hygienic conditions (*see* IS : 5059-1969†).

4.3 The bread shall also conform to the requirements given in Table 1.

TABLE 1 REQUIREMENTS FOR PROTEIN-FORTIFIED BREAD

SL No.	CHARACTERISTIC	REQUIREMENT	METHOD OF TEST, REF TO
(1)	(2)	(3)	(4)
i)	Total solid content, percent by mass, <i>Min</i>	60	Appendix B of IS : 1483-1968*
ii)	pH	5.5 to 6.0	Appendix C of IS : 1483-1968*
iii)	Acid-insoluble ash (on dry basis), percent by mass, <i>Max</i>	0.2	Appendix D of IS : 1483-1968*
iv)	Protein (N \times 6.25) (on dry basis), percent by mass, <i>Min</i>	12	IS : 7219-1973†
v)	Crude fibre (on dry basis), percent by mass, <i>Max</i>	1.8	Appendix E of IS : 1483-1968*

*Specification for white bread (*first revision*).

†Method for determination of protein in foods and feeds.

*Specification for white bread (*first revision*).

†Code for hygienic conditions for large scale biscuit manufacturing units and bakery units.

5. MASS

5.1 Tolerance — An average of 20 loaves shall conform to the following tolerances depending on mass.

<i>Net Mass When Packed</i>	<i>Tolerance</i>
Up to 500 g	± 6 percent
Above 500 g and up to 1 000 g	± 4 percent

6. PACKING

6.1 The protein-fortified bread shall be wrapped or packed as such or in sliced form in clean waxed paper, grease proof paper or any other suitable non-toxic wrapper.

7. MARKING

7.1 The container shall be marked with the following particulars clearly and indelibly on the outside of the wrapper. If printed, the ink used shall be non-toxic and non-transferable:

- a) Name of the material;
- b) Net mass of the material;
- c) Name and address of manufacturer;
- d) Trade name, if any; and
- e) Any other details required under Packaged Commodities Regulation, 1974 for bread.

7.2 Each package may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8. SAMPLING

8.1 Representative samples of the material for the test shall be drawn according to the method prescribed in Appendix F of IS : 1483-1968*.

*Specification for white bread (*first revision*).

9. TESTS AND CRITERIA FOR CONFORMITY

9.1 Tests shall be carried out as prescribed in **4.1.1**, **4.3** and in col 4 of Table 1.

9.2 Quality of Reagents — Unless specified otherwise, pure chemicals shall be employed in tests and distilled water (*see* IS: 1070-1977*) shall be used where the use of water as a reagent is intended.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

9.3 Criteria for Conformity — The criteria for ascertaining conformity to the requirements of this specification shall be as prescribed in Appendix F of IS : 1483-1968†.

*Specification for water for general laboratory use (*second revision*).

†Specification for white bread (*first revision*).